

### **Abstract**

A system for data acquisition providing dual monitoring of sensor data. Data is acquired from sensing devices by a primary data acquisition circuit and a secondary data acquisition circuit. Multiple sensors are used to sense a condition of the same operating parameters, in order to verify a process condition. Data acquired by a first sensing device is processed by the primary data acquisition circuit, and data acquired by a second sensing device is processed by the secondary data acquisition circuit. According to one aspect of the present invention, a process condition is verified by comparing data associated with the first sensing device and data associated with the second sensing device. In accordance with another aspect of the present invention data acquired by a single sensing device may be processed through both the primary data acquisition circuit and the secondary data acquisition circuit, in order to verify operation of the primary and secondary data acquisition circuits.